Conditions: a) BnBr, Ag₂O, DMF, rt, 86%; b) DIBAL-H, THF, rt, 94%; c) Ph₃P+CH₂Ph Br, KOtBu, THF -78° C to rt, 2.5 h, 95%; d) i. (BnO)₂PN(i-Pr)₂, tetrazole, CH₂Cl₂, rt, 3 h, ii.O₃, CH₂Cl₂, CH₃OH, -78° C 10 min, ii. Me₂S, -78° C to rt, 10 min, 62%; e) NaClO₂, NaH₂PO₄, CH₂Cl₂, CH₃OH, H₂O, rt, 95%; 1 Fmoc- Ω -alanine, EDC, HOBt, EtN(i-Pr)₂, THF, rt, 5h, 60%; g) piperidine, DMF; h) EDC, HOBt, EtN(Pr)₂, THF; i) Li, naphthalene, THF, -20° C, 1.5 h, 90%; j) CoAD, ATP; k) CoAE, ATP;

Figure 1

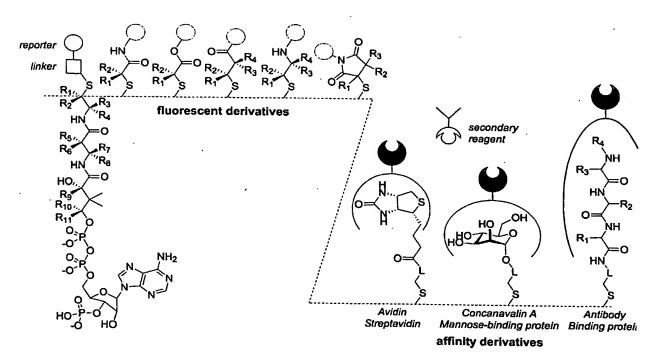


Figure 2

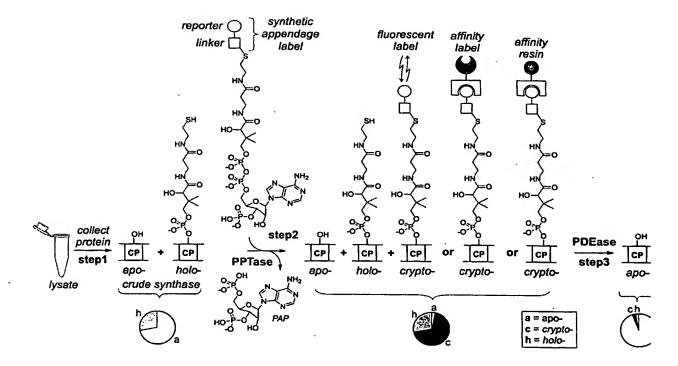


Figure 3

Figure 4

Figure 5

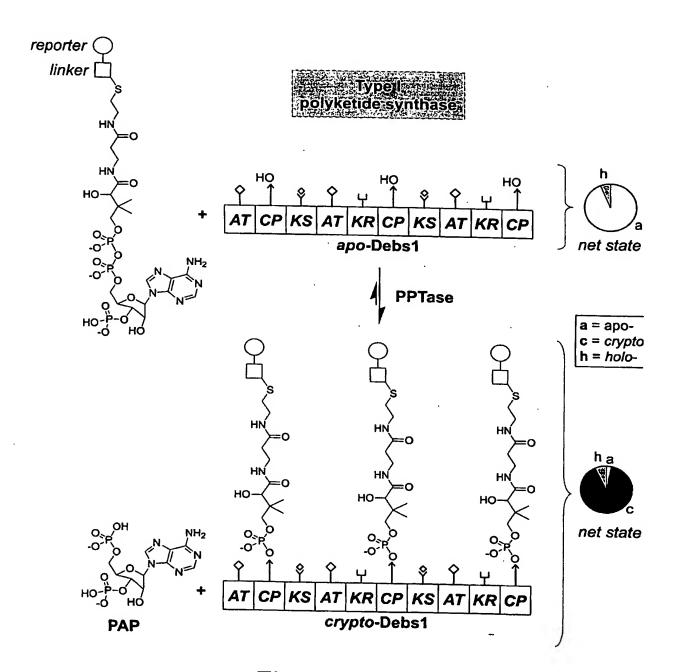


Figure 6

Figure 7

Figure 8

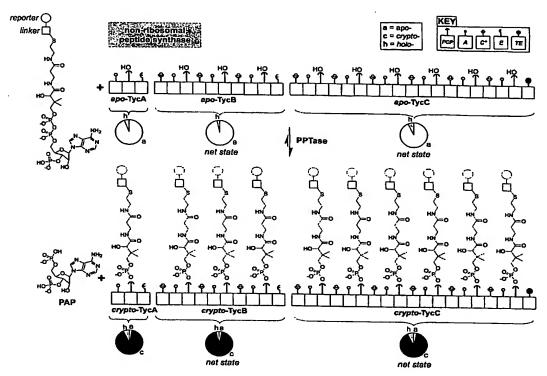


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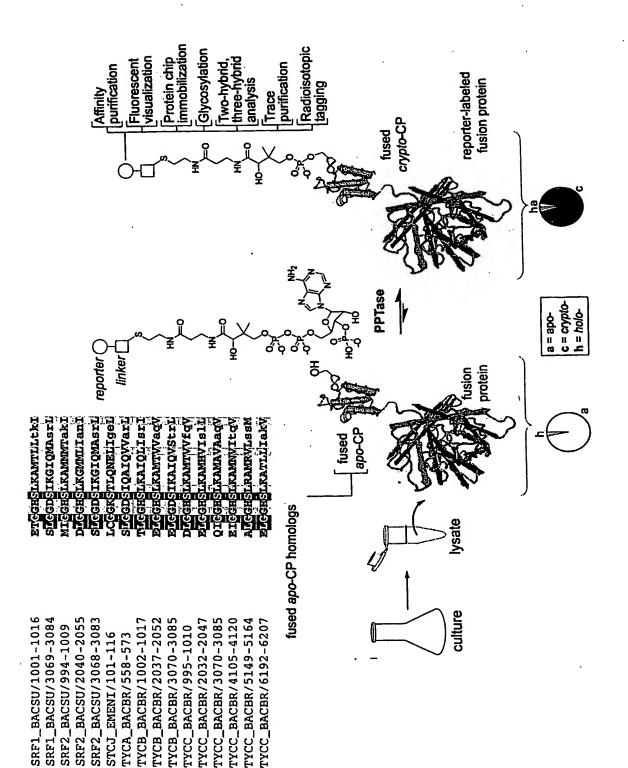


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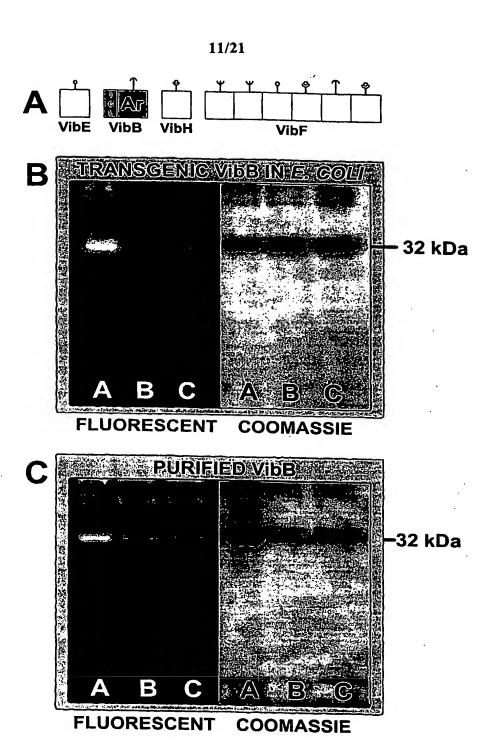


Figure 11

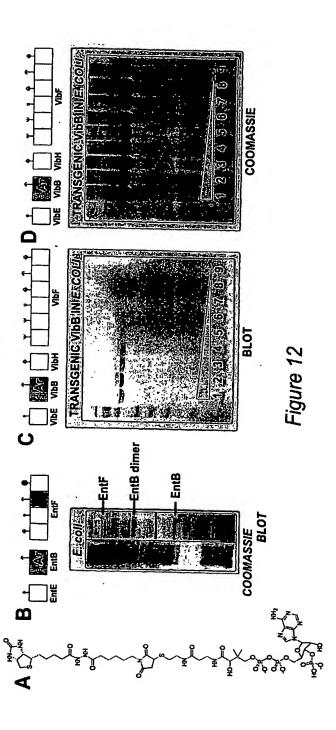


Figure 13

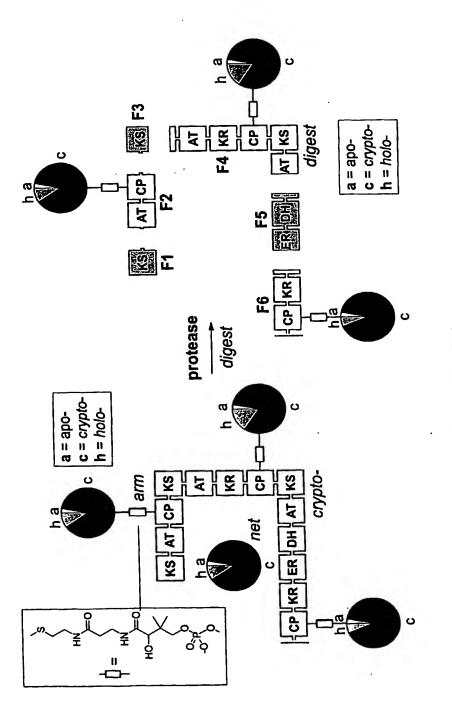
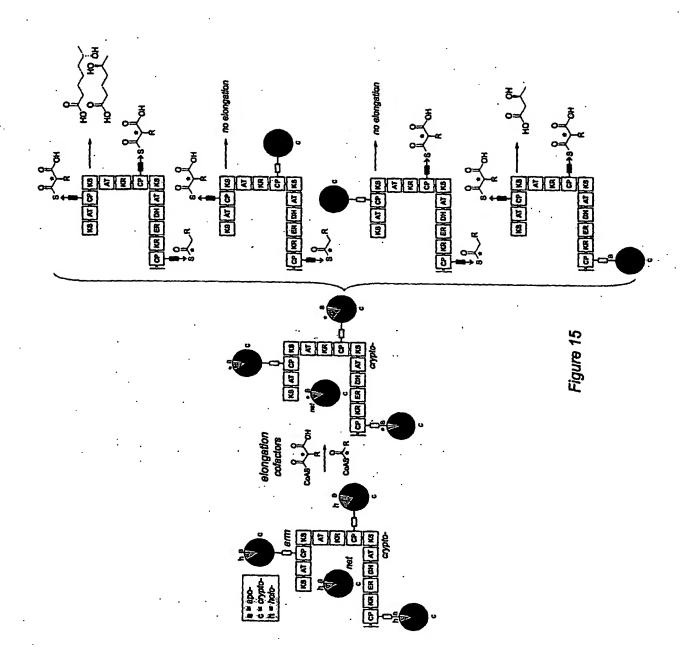
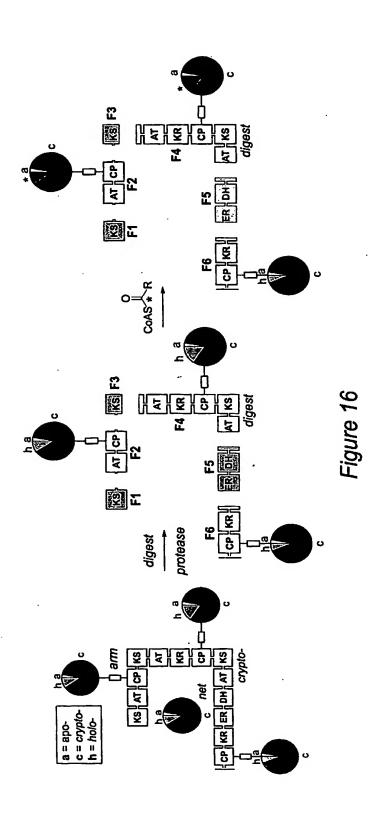


Figure 14

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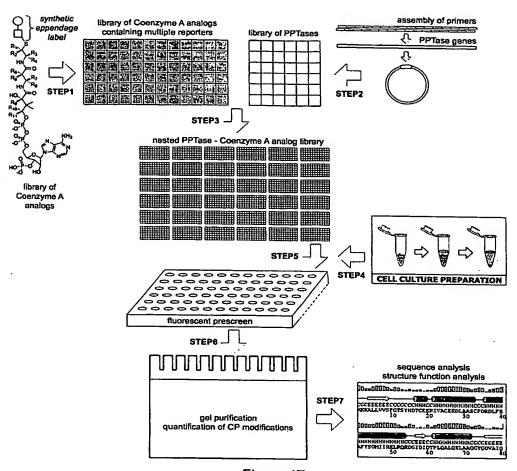


Figure 17

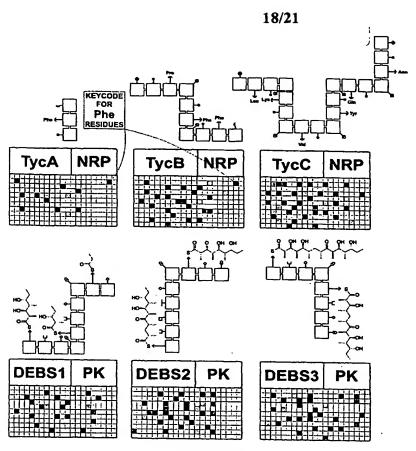


Figure 18

Figure 19

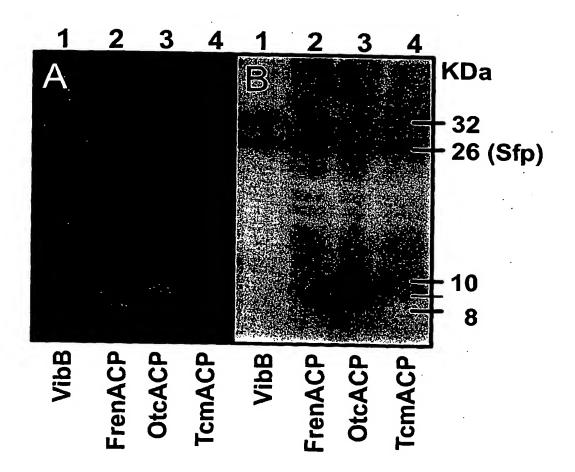


Figure 20

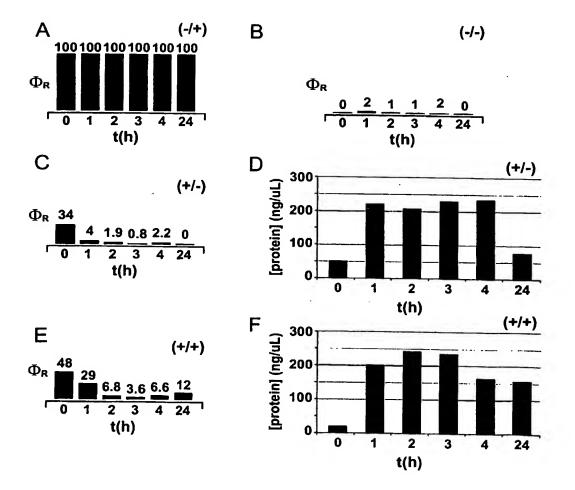
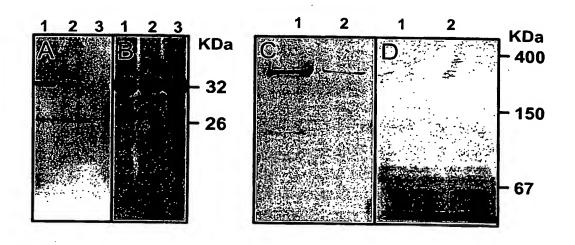


Figure 21



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